Obs. A *L. leucogastro* (Tschud.) differt rectricibus unicoloribus, intus non albo marginatis, necnon rostro breviore.

Hab. Huiro, Peruviæ merid. (typical specimen in mus. H. v. B. no. 6066, "♂, Huiro, 4800," 12th June, 1874, *H. Whitely coll.*).

I have sometimes looked upon this as being the young of *L. leucogaster* (Tschud.); but Dr. Taczanowski assures me that he has had many specimens of *L. leucogaster* under his eyes, and amongst them young birds which already showed the white marks on the inner webs of the outer rectrices, of which *L. viridicauda* has not the slightest trace.

Dr. Taczanowski thinks the Huiro bird quite distinct; and I do not dissent from the opinion of our best authority on the birds of Peru.

XXXIX.—*The last Journal of* W. A. Forbes.

[Mr. Forbes's sorrowing relatives have entrusted to us the Journal kept by him during his expedition up the Niger. We are sure that his brother Members of the B. O. U. and other persons interested in natural history will be glad to have the opportunity of reading it.—Edd.]

July 19th, 1882. Left Liverpool in S.S. 'Bonny,' 797 tons register, Captain Haltje, getting off about noon. Sea rather rolling. Passed Skerries about 6 p.m., and off South Stack at 9 p.m.

July 20th. Showery and dull, with a rolling sea. 40 miles south of Tusker at breakfast. Run 130 miles from Skerries.

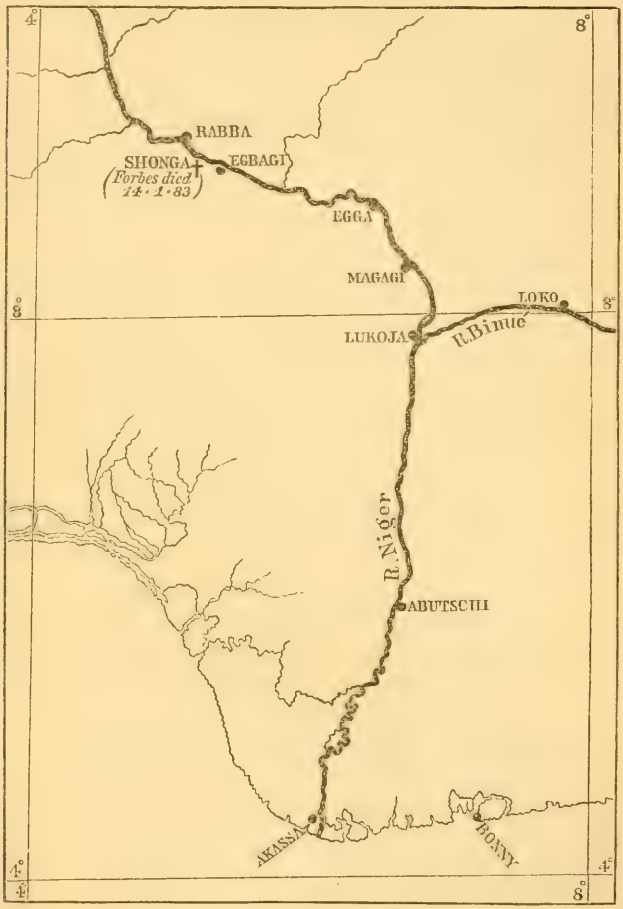
July 21st. Showery, but finer. Ship still rolling a good deal. Run 214 miles.

July 22nd. Finer and sea smoother. Run 231 miles. A few *Oceanites* behind ship.

July 23rd. Fine and bright. Swell gone down. Run about 238 miles. Many Petrels behind ship.

July 24th. Fine and bright, much warmer. Sea smooth. A number of Petrels behind ship, their yellow webs clearly seen. The legs are carried straight out behind, extending a

little beyond tail, and only lowered when "coming-to" on the water. I have not yet seen one clearly settle. The flight Fulmar-like, the wings being rapidly beaten to get up speed, the bird then gliding with wings stretched for some



Map of Lower Niger, showing Forbes's Stations.

time. Run 256 miles. 289 miles from Madeira at noon, in latitude of Cape St. Vincent.

July 25th. Sighted Porto Santo about 10 A.M. on port, and Madeira, about three hours later, on starboard. There

is a deep sea (over 100 fathoms) between the two, whereas the Desertas, nearer Madeira, are connected to that by a bank. From Porto Santo to the lighthouse at Madeira is 23 miles. Between the two islands I saw many *Bulweria,* two quite close to the ship, settle on the water. The flight is strong, *Puffinus*- or Swift-like. Besides the *Bulwerias,* a good number of a brownish-grey *Puffinus,* with belly and rest of underside pure white; head, breast, and tail like the back. There were a number of these just off Funchal; also some Gulls, apparently *Larus affinus,* with yellow feet, darkish mantle; patagial margins of wings, tip of secondaries, and an oblique bar across second coverts white. Got into Funchal about 5 P.M., anchoring close to shore. The town looks very pretty from the sea—white houses, green shutters &c., quite like other Portuguese towns. The lower slopes of the hills are much cultivated in terraces, the tops wooded with stone-pines and, apparently, *Erica arborea,* a bright green conifer-like tree. The streets are paved with rounded pebbles, closely packed together, and quite polished from the friction of the cow-sledges, there being no wheeled vehicles. Went to Miles's hotel and had some dinner. Pretty garden, with bananas, palms, hibiscus, cannas, &c. &c., and many *Sphinx convolvuli.* Only birds seen were Swifts, apparently *Cypselus apus,* and a yellowish Wagtail, *Motacilla sulphurea.* On ship again about 8.30 P.M. and off at 9. The 'Conway Castle' for Cape came in just after we did, and left again just after us, soon passing us. The three Desertas are well seen from Madeira, the most northern low and truncated, the two others high, rocky, and barren. All the group are obviously volcanic, some section of Madeira being seen in coast-cliffs as we steamed west from the lighthouse to Funchal.

July 26th. Duller and cooler, with some swell. Running before the north-east trades. At noon had come about 150 miles from Funchal. In afternoon passed a Dutch steamer, schooner-rigged, going north. About 9 P.M. saw the revolving light of Palma, about 15 miles distant on starboard

bow. In the morning saw a few of the same *Puffinus* as we had seen off Madeira.

July 27th. Duller and cooler. No ships or birds. Run 235 miles.

July 28th. Very smooth and fine, but not hot. Run 228 miles. 50 miles off Cape Blanco at dinner. A lot of *Oceanites* behind ship till dusk. A large Hawk appeared about 7, when ship about 50 miles from land, striking apparently at something (? a Petrel) and not reappearing.

July 29th. Cool and smooth. Run 235 miles. A few flying-fish seen in the evening.

S. July 30th. Cape Verde in sight at breakfast time. A high cliff with lighthouse on top, rising rather suddenly from a low wooded flat coast. No palms visible on shore from ship at 10 miles off. A lot of *Oceanites* after ship all day; and in afternoon a flock of *Puffinus* fishing with a school of Bonitas. Run 251 miles. Some rain towards evening.

July 31st. Showery in morning, cloudy, with a slight sea. Commenced casting about 10. Run 215 miles. Roughish all day.

Aug. 1st. Heavy rain in morning. About 10 A.M. a flock of about ten of a *Sula* behind ship, nearly all white, and apparently *Sula bassana*. Run 220 miles. Sea smoother. Cleared up at noon. In afternoon, about 4.30, sighted the high hills (Sierra Leone, s. str.) to south of Freetown. Close to land by 6 P.M., and anchored in river off lighthouse by 9.

Aug. 2nd. Up early on deck to see Sierra Leone; raining hard, but cleared up after breakfast. The high hills lie south of the town, which is small and very English-looking with brick houses, and the barracks &c. on higher ground behind town. The land on north of river is flat and bushy; an island above town on south bank also. Some traces of forest left on highest range of hills; the rest pretty nearly entirely cleared, with a few scattered big trees and bushy undergrowth, and numbers of palms close to shore. I took two photos, one of the lighthouse at point (west of town about 4 miles), the other of breakers, just to right of it;

the second Gallinia interfered with, exposing it too long. Got our "boys," and left by noon. Rather rough outside with heavy rain. Saw a number of *Oceanites* in Sierra-Leone river just behind ship; and the water being smooth, could watch them well. They never settle, but paddle in the water with fluttering wings, and also "duck-and-drake" along by bounds, the wings being kept steady and horizontal and the tail spread, the legs depending vertically. On shore could see some pensile long nests hanging from cocoa-palms (? of *Hyphantornis*), and a Tern or two, but too far off to make out the species.

Aug. 3rd. Warmer and finer, with sea smooth. Run 200 miles from Sierra Leone. Men painting ship and "boys" making themselves generally useful, cleaning donkey-engine, brass-work, &c. Land at 12. About 5 P.M. off Cape Mount, a thickly wooded high rounded promontory, apparently of black basalt, rising abruptly from the rest of the coast, which is flat, well wooded, and extends as far as one can see both east and west of it. About 10 P.M. saw the light at Monrovia.

Aug. 4th. Fine and smooth, with cool breeze. Still off the Liberian coast, here flat and low still. Mangos taste like tamarinds with a dash of turpentine. Alligator-pears like vegetable-marrow, or inferior cucumber, but pulp softer and sweeter. About 11 A.M. saw a whale spouting inshore, not a large one, apparently. The evening before passed close to a shoal of dolphins just off Cape Mount—pale grey above, below and side-stripes white; a long nose. Half-speed all day.

Aug. 5th. Off Grand Sestres at daybreak, and shipped seven boys and some others as passengers. The town consists three fourths of patches of mud and palm huts in cleared patches on the beach. The men are bigger and finer than those we shipped at Sierra Leone, and much browner in colour, as a rule, though varying much. Many have a broad line tattooed down forehead to tip of nose, and two arrow-shaped marks on face, one on each side, with apex just below outer centres of eyes. Most wear only a loin-cloth, with bracelets, bangles, and necklace of brass wire, with keys &c.

as pijues. Some have a few tattooed marks on back in stripes, or on breast just above nipples ⊹. Hair very short and woolly on head, and some quite shaved there; little or no beard or whiskers; a good deal of short curly hair on abdomen, chest, thighs, &c. Saw a couple of whales, apparently very big and greyish in colour, about an hour after leaving Grand Sestres. An *Oceanites* off ship at Grand Sestres. Saw Cape Palmas about 9.30. Coast low, flat, and wooded densely, with sandy beach, and black (? basalt) rocks in places. The Grand Sestres canoes are dug-outs, with ¾ cross thwarts, and rounded away stem and stern. The men, one third sit or kneel on bottom and paddle with both hands on one side, the paddle being short, with a rhomboidal blade. Besides this usually a wooden scoop to bale out. Canoes and paddles often mended by being sown up with some creeper, also used for making thwarts fast at side of boat. Had come about 100 miles at noon from position day before. Saw Cape Palmas and wreck of 'Joriba.' Lost land in afternoon.

S. Aug. 6th. Fine and smooth, with bright sun. Just after breakfast two steamers hove in sight, steering to the north. They turned out to be the 'Volta' and 'Coanza;' the latter in tow and disabled, having been on shore at Porto Seguro (close to Little Popo), and carried away stern-post, rudder, and three blades of propeller. Communicated and sent letters, papers, &c. on board, and then proceeded on our course. At noon 80 miles west of Cape Three Points. Run 261 miles. One or two *Oceanites* still occasionally seen off ship. In afternoon off Assinie hills and "Hummocks of Apollonia." At 10 P.M. in sight of the light at Cape Three Points. Got two photographs of our Kru boys; the second Ashbury exposed by lifting the slide.

Aug. 7th. Cool, fine, and smooth. Passed Cape Coast Castle at 1 in the morning. Accrà at about 7.30. Coast beyond Volta, which we passed about 1, with sandy beach and low scrubby bush; no thick forest apparently. Off Popo coast in afternoon. 'Congo' at anchor off Little (?) Popo, with captain down with fever. Passed Whydah about 11.30 P.M.

Aug. 8th. Off Lagos about 7 A.M. Quite a fleet of steamers there—'Corisco' (homeward), 'Kinsembo' (west coast), 'Malembe' and 'Winnebah' (Hamburg), also one or two smaller branch and bar boats. Rowland gone to Accrà. Quite cool and cloudy, with slight swell.

Aug. 9th. Cool and cloudy still, with calm sea. Land in sight at daybreak, low and flat. Anchored in Bonny river off the town about 1.30. Coming in on a sandy spit below "Rough Corner" (the white-men's burying-ground) is a great colony of a large grey-mantled Tern, *Sterna melanotis* [*S. caspia*]. Went on shore about 3 P.M. with Ashbury and John Jumbo's clerk and brother-in-law (white). Interviewed J. J., who gave us a guide through the town to show us the juju-house (much neglected), church, and other sights. Many of the unmarried girls up to 17 or so quite nude, as are all the children up to 10 or 12. Men wear a loin-cloth, or a shirt, drawers, &c. of European stuffs, and married women clothed below navel. Many of the children and girls stencilled, often very beautifully and elaborately, all over with a native dye from a green pomegranate-like fruit, simulating tattooing. The street very narrow and in part paved with a large *Cardium*. The houses of wattle, the interstices filled up with mud, and the roofs palm-thatched or corrugated zinc. Some fine old forest-trees on outskirts of town, also bush, with many ferns (especially a large *Osmunda*, with fertile apex only of pinnules of fronds), and mangrove-swamps. Saw an *Elaphocerium* growing on a big tree. In Jumbo's garden a fine frangipani shrub in flower, with *Merium*, or yellow papilionaceous shrub, roses, *Carica*, &c. In the mangrove-swamp an *Anophthalmus* in swarms, going on *land* when disturbed, and hopping, duck-and-drake-like, *over* water like a lot of tadpoles. Many land-crabs also. Of birds saw *Vidua principalis*, a *Nectarinia*, a *Drymœca* (?), and others.

Aug. 10th. From ship in morning saw a large flock of Pelicans on sandy spit on right of river, also a largish white *Ardea*, and a black-and-white Eagle flying over water (? *Gypohierax*). Went on shore about 10, and took about twelve photos of town and natives, juju-house, church, and

mission-station. At latter saw Archdeacon Crowther, son of the Bishop. In the compound was a fine shrub in full flower of the orange-yellow *Lilias* (*fide* Gallinia), of which I had seen flowers before. The natives organized a grand dance of three or four men, including the chief juju priest, to a band of two or three tomtoms. Some of the girls and children entirely covered with a red dye (camwood), whether for ornament or for curing "craw-craw" (a skin disease) is doubtful. Caught a few butterflies, including a black-and-yellow *Papilio* and an *Acræa*; the latter common and flying slowly in afternoon over a pink heliotrope, or allied shrub, and accompanied by a mimicking *Geometer* with pectinated antennæ. Saw a few grey Parrots flying in twos and threes high and fast overhead.

Aug. 11th. Wet in morning. Went on shore about 11, with Watson and Gallinia. Wet, but cleared up in evening. About 4 P.M. went off with J. J., W., and G. to try and shoot some Pelicans. Only got within 400 yards, and missed two shots at that distance; then went up a creek on other side of river and got into a warm corner with Curlews, Sandpipers, a few Parrots, &c. Killed a few *Totanus hypoleucus* and a couple of large Terns (? *Sterna melanotis*), the best of which I skinned. Came on to rain hard before we got back to ship.

Aug. 12th. Wet in morning. Left 'Bonny' about 11 and went ashore with Ashbury to photograph. Took photos of a big tree (? a *Bombax*), and three of a so-called "albino" girl (Ibo), belonging to a black named Hart, who sent us (it having got very wet) aboard the 'Adriatic' hulk in grand style in his canoe, with about thirty paddlers, double-banked. On board 'Adriatic' for the night.

Aug. 13th. On board 'Adriatic' with Captain Gillies and C. de Certi, a Corsican trader, formerly at Opobo. Wet all morning, and did not leave ship till about 4 P.M., when left with Ashbury and Greenshields for Akassa in 'Dodo.' Ship rolled horribly during the night.

Aug. 14th. Off the mouth of the Nun at 8 A.M., but did not reach Akassa till three hours later, owing to the difficulty

of sighting the bar-buoy, the land being hazy. River about a mile or a mile and a half broad at mouth, 12 feet of water on bar, passage being surrounded by breakers on both sides, and particularly on the west. Akassa is situated on the right bank, a few miles above mouth. Two dwellings, a billiard-room, some sheds, native huts, and further up the shops. About 180 hands employed, all, except three, black. Mr. W. A. Earnshaw in charge, Sargent and Macintosh being away. A lovely yellow bushy *Hibiscus*, with big leaves, behind the house; also saw a black *Papilio*, a male *Chalcosia*, crowds of *Anophthalmus*, land-crabs of several species, one with asymmetrical cheke (? *Callianassa*), and a black lizard with red head and tail. The natives had strings of a large *Achatina* hanging up for sale to eat, and with them a *Cinixys*. Had some chops at the house and left about 5 in the 'King Massaba,' Captain Charles Macintosh, for Abutschi, a station just below Onitscha. For some miles steamed through nothing but half-flooded mangrove-swamps, in which gradually a few bushy palms appear, these increasing in number as banks get a little higher and land firmer. Anchored for night about 10. In swamps about 5.30 P.M.; saw half a dozen live *Scopus*, also a grey Parrot or two, and a large black-and-white Kingfisher.

Aug. 15th. Under steam all day from about 5.30 to 8. Out of the mangroves at daylight; they do not extend very far up. Ashbury photographing the banks, with village, all day. Towns in this part hostile. Passed in afternoon place where 'Sultan of Sokoto' got ashore and was plundered, a few miles below a largish village called Emblama. The banks are covered with not very thick forest and jungle, a large cotton-tree being the most conspicuous plant, also oil-palms in numbers. In afternoon saw several of a moderate-sized tree, with white smooth stem and splendid large scarlet flowers. Many plantains, a few cassavas, and a large *Calodium*-like plant called "coco" are grown by the natives. The banks are low, with many sand-banks in places, all apparently a light yellow or greyish loam, apparently quite recent and fluviatile. Saw in morning a few deep-blue small Swal-

lows, with white on tail (? *Atticora fasciata*), and a small *Motacilla*, very white. In afternoon a small *Buceros* or two, solitary, black, with white belly, high black beak, and casque with large white mark (? *Buceros fistulator*). The flight is an alternation of heavy flapping with smooth gliding. Lots of *Pratincola* flying like Swallows just over surface of river below Emblama—white tail and below, with large square white patch on primaries. Saw a flock of three of a green *Treron* fly over river, and got a shot at a crocodile lying on a bank. Macintosh had previously killed one about 8 feet long.

Aug. 16th. Fine morning. Started at 6, and at 7 were near to Wari creek, the head of the delta leading to Benin, and about 200 miles from sea (in ship's course). Saw a *Buceros* and a couple of Cuculine birds, chestnut with black cap and white throat (probably *Centropus*). On a bank just at Wari creek saw a great number of *Gypohierax* (both in young and adult plumage) and a solitary *Ardea goliath*. A little above saw two Hippopotami; but Macintosh failed to hit them. *Ardea flavirostris*, and another smaller grey species, on sand-banks above. The coco and palm-nut trees near the villages are crowded with compact circular pensile nests of a Weaver-bird, first seen yesterday. The banks are about 18 feet high where exposed by river-section, of a reddish-grey or yellowish loam, obviously stratified, but not always horizontally. About 12 got to Aboh, where there is a factory and the hulk 'Arran Isle.' The native town is inland about an hour's walk. Got about twenty butterflies near bank, chiefly *Acræa* of two or three species. Shot a male *Hyphantornis*, and a female *Estrelda*—eyes pale brown-olive, beak rosy red marked with black, feet dirty flesh. On shore about three quarters of an hour. After lunch landed on a large sandy bank to stalk two crocodiles, and got within about 150 yards, but missed mine as it was going into the water. Greenshields did not get his shot. Walked about on bank and shot a male *Vidua principalis*, also saw several of the *Glareola* walking about on bank. In morning shot a crocodile from steamer at about 800 yards with the captain's Martini, and made fine practice at a bottle, a cartridge, or two inches of pipe put upon fore davits.

Aug. 17th. Passed Osomari, Alenso, Atani, and about noon got to Abutschi. In morning, just above Osomari, met Captain Macintosh in the 'Jessie' from Lukoja. He came on board for a few minutes and went on to Akassa. Abutschi is about 270 miles by river from Akassa, a little way below Onitschi, on the left bank of the river. Caught a few butterflies about the steamer on landing at factory, and in afternoon went down to a large sand-bank with Captain D. Macintosh and succeeded in shooting a hippopotamus from the bank. He sank, but his body could not be found, though we sent a boat and boys to watch for its rising. I shot a *Glareola cinerea* (legs and base of beak bright red), a *Hyphantornis personatus*, male, and one of another species (eyes orange-brown) which was nesting on the acacia-bushes on the bank. The nests are of grass, nearly circular, of the size of one's two fists, with the aperture vertical to one side. An egg was bluish green, thickly freckled with red-brown blotches, forming a zone round larger pole. Captain D. Macintosh also shot a *Rhynchops* for me; we had seen large flocks of it on the banks coming up. When settled on the ground looks peculiarly small. Saw also *Corvus curvirostris*, which has a *caw* like our Crow.

Aug. 18th. At Abutschi. Captain D. Macintosh out shooting in the morning and brought me in six or seven birds, including a nice *Centropus* and a *Pogonias*. Caught a most peculiar pale glaucous-green *Homopteron* in garden, flying about amongst shrubs, like a *Geometer*, which it was, I thought, till I pinned it. In evening shot two *Euplectes flammiceps*, these and *Vidua macrocerca* being very common in grass-lands behind factory amongst their plantations.

Aug. 19th. Went out in morning with young Macintosh along bank. Shot thirty of the orange-headed *Hyphantornis*, an *Estrelda*, and a *Pluvianus ægypticus*, of which I had seen plenty before (bill black, eyes dark brown, legs beautiful pale greyish blue, claws black). Started to get ready for Onitschi; but a heavy shower came on just after we started, so Greenshields and I turned back, Ashbury going on. After lunch at Abutschi on 'King Massaba' we went

out after birds, D. Macintosh shooting *Hyphantornis luteus* (eyes orange-brown), *Hyphantornis personatus*?, *Spermestes cucullatus*, a Timeliine bird, and a *Telephonus* (eyes deep smalt-blue). Also saw *Euplectes oryx* or *ignicolor*, several of a *Buceros* and *Psittacus erithacus*. About 5.15 P.M. started on horses for Onitschi factory, which we got to in three quarters of an hour's ride through a sandy grass-covered country, with scattered trees and termite-hills 6 feet high. Swarms of a Lampyroid glowworm outside factory. Some nests of the *Hyphantornis* on beach (? *Hyphantornis aurifrons*) had callow young, and one an egg of uniform pale chocolate-brown colour. Beautiful little purse-like nests of vegetable fibres in long grass made by the little *Estrelda*.

S. Aug. 20th. Started about 9 for a creek on left bank of river, a little above Onitschi, with Greenshields in a canoe with five boys. Saw no Hippopotami (native "Itabo"), but shot a Manati, and saw several monkeys, apparently *Cercopithecus mona*, and a black one. One of the former I wounded, but did not secure. Saw several *Plotus*, and shot a female, its stomach just as in *Plotus melanogaster*: gastric epithelium to top of and covering proventricular area, and no V-shaped ridge distinct. Stomach full of nematodes, but none penetrated (apparently) past plug, numerous ones being caught and detained in it. Food was apparently entirely fresh-water prawns. Saw several fine *Haliaetus vocifer*, several *Neophron pileatus* (very tame), a large *Buceros* with high casque, *Psittacus erithacus*, a greyish-blue *Campephaga*, a steely-blue *Progne* with white throat, a *Butorides* with orange legs, dark cap, and pale chestnut gular streak, *Ceryle rudis*?, a beautiful small blue *Alcedo* with black bill, orange legs and underside, and white ear-spot, the *Centropus*, &c. Got a lot of orchids and a *Platycerium*, amongst which was a caterpillar (? *Noctua*) with large black yellow-bordered ocelli on sides of fourth segment. A fine grey Hawk-Eagle at factory, with black-and-white barred tail, elongated nuchal crest, yellow bill and feet, and pale greyish-yellow eyes. Also saw on banks a small chocolate Dove, with red beak and slaty-blue cap.

Aug. 21st. After chop went over to Onitschi (town) with Greenshields; he with gun, I with net. At first through fields of grass and yams, then to town, enclosed in a stockade neatly kept, with fine big trees, coco-palms, undergrowth, and red clay houses. *Papilio merope* abundant, and caught a pair in copulation, the male with a black-and-white *Diadema*-like female. Several species of *Terias* and *Pieris* very abundant in outskirts. Shot a pair of the *Lagonosticta* (eyes olive-brown) in fields, a glossy green Swallow, a *Nectarinia*, *Hyphantornis castaneofuscus* (eyes yellow, legs dark livid flesh), and a *Sycobius* with red head, which frequented the palms, and was in company with a similar, but black-headed bird. Also saw several of the smaller yellow-billed *Buceros* in trees of town. On return to factory (Mr. Taylor, a Sierra-Leone man, is "boss"), found our "Manati" of yesterday was an immense crocodile, about 15 feet long, with nuchal scutes just separated from dorsal, of which there were six, strongly keeled in each series, diminishing to four on tail, with indication of another row on flanks. A male with tracheal loop (? *Crocodilus acutus*). Stomach contained fish and stones, some of the latter much rounded. Saved skull, nuchal plate, and trachea. Rode back with Greenshields to Abutschi in evening, after "liquoring up" with M——, the agent of the French factory at Onitschi.

Aug. 22nd. Skinning birds and reloading cartridges nearly all day. In afternoon shot a *Hirundo senegalensis* in garden, one of several perching on a high tree and hawking insects. Also got a female Ploceine bird (? female of an *Euplectes*). Boy brought in one of the common house-lizards, which change colour most remarkably, head and middle third of tail becoming brick-red, basal third and middle of back metallic bluish green when excited, after a long rest entirely dull blackish. The *Buceros* here is apparently *Buceros cylindricus* or some closely allied form, shy, and not easy to approach.

Aug. 23rd. Out with Greenshields in morning in plantations behind factory. Shot a male *Euplectes franciscanus*, three *Hyphantornis textor* (irides red), which had nests in a

colony on a small tree over some water (nests purse-like, *not* pensile, strangely), mixed up with a smaller black-fronted species, and a *Crithagra chrysopyga*, which is not at all rare (in twos and threes) and has rather a pretty song. D. Macintosh on the 'Fulah,' with the 'Jessie' in tow, turned up on return; and about 12 we started off up the river for Lukoja on board the 'Fulah.' Passed Onitschi, the town quite invisible from the river, and Asaba, and had shots at some Hippopotami on way.

Aug. 24th. Met the 'Busybody,' with Mr. Ashcroft on board, about 8. He was fixing up a new station, and had been collecting birds for me, amongst them two *Glareola cinerea*, which he gave me. The banks here are about 15 feet high, nearly vertical, of a compact reddish-yellow or grey loam, not obviously stratified; in other parts only sections of recent sand-banks are seen. Saw a large flock of *Psittacus*, some Hornbills (? *Berenicornis* or *Buceros elatus*), some *Plectropterus*, *Ardea*, &c. Banks thickly wooded with pretty dense, but not big, forest, with but few big trees or *lianas*. Heard some leopards miauling in bush at night.

Aug. 25th. Up to Idda about 9, a large town on left bank of river on a high bluff, with vertical cliffs towards river, perhaps 120 to 150 feet high, apparently of an altered sandstone of a red colour, laminated or stratified in places, with contemporaneous veins (?) running nearly horizontal. Saw a number of white Egrets and *Plotus* on a high tree. Towards noon got in amongst the high country, with flat-topped hills, apparently remains of a continuous tableland.

Aug. 26th. Amongst the hills still, just below Beaufort Island, apparently of a much jointed compact yellowish sandstone, weathering out into large boulders. Some of the hills conical and nearly isolated, others flat-topped; Mount d'Or, one of the highest, rounded. Saw apparently a couple of *Chenalopex* on a sand-bank, also some Hornbills. Lukoja mountain, long, low, and flat-topped, to left of river, ascending. Saw a couple of *Balearica* on a bank, here called crown-birds. The country here, above Beaufort Island, seems to fall away and become less hilly and flatter, the hills

running transversely across the river on both banks. Got to Lukoja, passing Tybebe on left bank just before, about noon, and left again in an hour's time for Magagi, the country above Lukoja being a high tableland, coming down to river by steep inclines, more or less wooded. Got to Magagi by dark.

S. Aug. 27th. At Magagi, discharging and loading cargo, with some difficulty in getting alongside, the water being shoal. Went on shore; but though I saw lots of birds, shot vilely, loosing or missing all but a *Platystira* (eye-wattle vermilion, tarsal planta pseudo-mesomyodian, but syrinx oscinine). A *Toccus* rather common; and also saw from steamer a *Berenicornis,* with head and tail, except two median rectrices, white. Saw lots of *Euplectes franciscanus, Spermestes cucullata,* the *Ixos,* a *Turtur,* &c. Lots of butterflies. Saw a black-and-white *Motacilla* and a yellow-wattled and legged *Lobivanellus* (*senegalensis* ?). Macintosh got for me a *Cercopithecus* alive from factory, quite young, with long fur, fleshy face, smutty nose, tipped ears, and a black facial ring (? *Cercopithecus nisnas*). They also had a *Cercopithecus sabæus* and a *Cynocephalus,* apparently *Cynocephalus sphinx,* both young. Lots of *Pluvianus.* Got photos of nests of *Hyphantornis textor* in town. Returned quickly to Lukoja, and before dark went on shore and shot a Waxbill, apparently *Rhodopyga rhodopsis,* not at all rare in town. *Pluvianus* on beach walking about or flying over water in numbers.

Aug. 28th. Went on shore early to hills behind town and got a lot of birds amongst small bushy trees, a *Picus, Chrysococcyx, Turtur senegalensis* (in town and compound), *Estrelda melpoda, E. minima* ?, *E. nigricollis,* two species of *Nectarinia,* a *Hirundo,* and two or three others. Saw also *Scopus, Euplectes franciscanus, E. flammiceps, Urobrachya macroura,* in grassy hills &c. outside town. Hill volcanic, quartzite- or felsite-looking, or metamorphic, cleared, with grass. Got a bright yellow-red antelope-skin from Macintosh. The commonest birds in town of Lukoja are *Passer simplex, Neophron, Spermestes cucullata, Hypochera,* and *Estrelda senegala* or *minima.* After breakfast again on

shore and saw a beautiful red-black *Nectarinia* singing quite sweetly in a gingeri-tree, which has an agreeable drupaceous fruit. In old factory *Spermestes cucullata* is very common; a nest I found was built on ground, of grass, lined with feathers, contained a pure white egg and three newly hatched down-covered young. The red- and green-headed lizards both common round houses. *Hyphantornis textor* in great swarms in trees of town, the *Spermestes* also nesting in a mango in the compound of factory, where the *Turtur* was also walking about quite tame. Got away about 1 and went up the Binué, passing a large town on right as you enter the Binué, called Gandi, with the tableland behind and to left of us. Wooded banks on both sides.

Aug. 29th. Steaming up, the Binué running very rapidly against us, with lots of *Pistia* and floating drift-grass. This river rises a little earlier, even more rapidly, than the Niger; only navigable by steamer for about three months; for the rest of the year very low and full of snags and sand-banks. The French have factories at Lukoja and Loko. The banks generally low and wooded; saw some high land in distance to left in morning, and earlier passed an isolated rising facing river by a steep bluff, apparently due to a thick, slightly inclined (dip?) basalt bed, overlying a compact yellow sandstone. Saw several *Plectropterus* (nearly certain *gambensis*, but ? head), and five or six Hornbills, apparently *Buceros buccinator*, with white wings and tail. "Arthur" down with fever, temperature 103°·8; mine, Greenshields's, and a boy's about 99°·6. Only passed two towns on left hand (or bank), Rumasha and Amàrà; there used to be a station at former. Above it we passed Mr. Watson in the 'Rosie' launch with a large boat in tow.

Aug. 30th. At Loko by 8. Went on shore shooting and again after chop, getting back by 4. Got a lot of birds, including an *Indicator*, *Turtur*, a *Pogonias*, *Drymœca*, *Ixos* and young?, *Hypochera* (common), *Crithagra*, *Estrelda phœnicotis*, a fine *Pytelia* (one out of a lot in tree), a male *Hyphantornis* (? *textor*, male in non-breeding dress, the bird being common here), a black *Pœoptera*?, a Muscicapine form,

and others, also *Euplectes franciscanus*, *Spermestes cucullata*, and *Vidua principalis*, as also *Passer simplex*, the first and last in numbers; also one *Ciconia episcopus*, a long-tailed Pigeon, a Woodpecker, &c. The country is flat, with corn- (? Guinea) fields and grassy lands, with 10- or 12-feet high termite-hills of red clay, everywhere interspersed with small trees; no thick bush or big trees anywhere. The town is like other towns here, surrounded by a mud wall, with regular gate of square shape, and beehive-roofed circular huts, the entrance-gate with two facing doors, enclosed in a palm or wicker fence. People (Mahometan) usually clothed in white or blue cloth. King tributary to Sokoto. Some higher land visible to south beyond left bank of river, here perhaps twice as broad as the Thames at Westminster and with a strong current. Ivory comes from Ademawa country, thirty days off.

Aug. 31st. Left Loko about 9, and going down Binué rapidly reached Lukoja about 5. Saw a few *Plectropterus* on banks of river, and a pair of *Balearica*. The *Neophron* very abundant at Loko. Took up our quarters in old factory.

Sept. 1st. Looking after things in factory, not much done. Caught a Bat and a Gecko in house, the former escaped. Curious ants' nest in mango-tree in factory compound, with the leaves all spun together with abundance of silk. Got female and workers. Male much smaller than latter.

Sept. 2nd. In morning shot an *Emberiza* (? *forbesi*), a couple of male *Nectarinia pulchella*, a *Lagonosticta*, and a *Motacilla*. Afterwards went down to old factory and into bush on hill, catching a few butterflies &c. Ashbury photographed M—— and natives. Got some fish, three species—a Clupeoid and a broad Cyprinoid, both with red fins, and a Percine form. Native dance by men—flowing garments, baggy trousers, and tobes. Got an antelope's head from chief, shot here two days ago, apparently *Alcelaphus tora*.

Sept. 3rd. Out shooting in morning and got a new species, an *Ortygospiza*, a *Corythornis*, an *Elminia*?, and a *Platystira*; also *Estrelda melpoda* and the *Saxicola*. Saw

Urobrachya macroura, same as already shot, with yellow interscapulars; *Nectarinia pulchella* quite common. A female antelope, bright yellow-brown colour, paler below, with black patches on fore legs, was brought in, apparently *Cervicapra bohor*.

Sept. 4th. Arthur disappeared. Went up the Lukoja hill with Greenshields and five men. We started at 8.30 and took 55 minutes, including stops, to top a tough climb over a rocky and pebbly path in bush. The top is a fine park-like plateau, with more or less long grass and wooded, not thickly, with scattered trees (sometimes big), acacias, &c. Saw some of the red-flowered tree. Numerous "spoor" of buffalo, antelope, and pig, but none seen. The hill consists of metamorphic oolitic sandstone and a breccia-like conglomerate, or agglomerate, of red colour, with included rather angular fragments. Shot a *Drymœca* on top, and saw some Guinea-fowl (?*Numida rendalli*), but few other birds. Greenshields caught some butterflies, dragonflies, and two moths. Left about 2 and took 30 minutes, without a stop, to return to old factory. Found that Arthur's body had been recovered, having been found in the river a little way above white mission house, the trousers and shirt on bank close by. Got a small snake and a *Calotes* from Ankrah.

Sept. 5th. Shot four Sunbirds in morning from lime-tree in compound, including examples of two species new to me. Afternoon skinning and looking after spirit-specimens. At 4 buried Arthur in bush just below model farm, and close to graves of Consuls Fell and Maxwell, who died here in 1867, the former the last white who had died here. Mr. Jones, a Sierra-Leone black, of Church Missionary Society, performed the service, Ashbury, Greenshields, and self, and about twenty blacks assisting. The soil is a reddish clay, apparently of half-decomposed basalts and igneous rocks; no solid rock seen in grave. Abiga shot several "deer" to-day and day before, close to town. Got five of the green-headed lizard from a boy at old factory. Saw a couple of *Agapornis* feeding on long grass on the banks of the creeks intersecting the town.

Sept. 6th. Went out with Abiga in morning down river after "deer;" but though we found lots of spoor, both of them and of buffalo, only saw one and did not get a shot. Saw some green- and yellow-backed *Pœocephali*. Abiga gave me the horns of a "deer" he had shot the day before close to town, described as rather small and red and white, apparently *Tragelaphus scriptus*. Got six of the common smaller green-striped-headed lizard from a boy; and a woman brought a large, but mutilated, *Clarias*-like Siluroid, with free maxilla? About 4.30 the 'Formoso' arrived, bringing Mr. Sargent and a newspaper of July 29th. Ashbury very low, determined to leave per 'Formoso' for Egga; Greenshields and self stopping here. Man brought a young Rail of uniform sooty black, with bright yellow-green beak, red legs, crimson eyes and orbits (? *Limnocorax niger*).

Sept. 7th. Out all day from 8.30 to 5.30 in the bush with Abiga down as far as opposite Igbebe, but got nothing, though I had two shots at an antelope, apparently a reddish gazelle, with black patches on the feet. Saw *Haliaetus vocifer* and lots of spoor of buffalo, antelope, and leopard quite fresh. The country is an undulating or nearly level grassy plain, with small isolated trees, with thicker bush only along the streams. In many places fine cairns of big boulders of granite or gneiss, the former with very large crystals of felspar and a good deal of hornblende. Many of the rocks obviously waterworn, and the whole valley clearly old valley of river.

Sept. 8th. Out for a couple of hours, 8 to 10, in morning with gun. Got an *Anthus* in too bad plumage (moulting) to skin (? *Anthus gouldi*), a female *Urobrachya macroura*, and a male *Hyphantornis* (? *atrogularis*) with nearly white eyes. Saw a fine adult *Helotarsus* flying high overhead, the white under wing-surfaces very conspicuous, and the legs apparently behind, short tail. At Abiga's house saw several antelope-skins, two dodoka (? *Hippotragus equinus*), mana (? *Adenota*), kanki (*Alcelaphus*), and mazo (*Tragelaphus scriptus*), of which latter he had given me the horns. Got a pair of horns of *Bos brachyceros*, and of what he said was a

young kanki, from him, and a skin. Later went out shooting up valley. Got very hot and only shot two birds, a *Drymœca* (same as that shot on top of Mount Patter), and two young Ploceine birds of uncertain species. (This is certainly young of *Spermestes cucullata*; I saw several of it next day in company with adults.) A heavy rain and thunderstorm came on just before sunset.

Sept. 9th. Out shooting early up valley, but only got a male *Estrelda rara* (one of two) and a *Turtur* (? *semitorquatus*), same as seen at Loko. Saw a yellow-bellied *Laniarius*, a *Tchitrea*, and some others, including *Thamnobia frontalis*, a *Ruticilla*, apparently all young. Picked up a *Mus*. In afternoon got a few butterflies in lane close to factory, and in fields adjoining some birds, including the *Elminia* (?), a young *Vidua principalis*, of which I saw several, two specimens of *Drymœca*, and *Estrelda rufopicta*, which occurs here with *Estrelda mimina*, but is rarer, female much redder, and male has pale bluish eye-ring. Abiga brought in a skin of a female *Tragelaphus*.

Sept. 10th. Skinned birds in morning. Felt seedy, and about 3 a sharpish attack of fever came on. Piled on a lot of blankets and sweated profusely. Felt better in evening and cooler; slight headache and pains in leg.

Sept. 11th. In bed, more or less, all day. Felt better, but still weak, with little appetite. A slight recurrence of fever in afternoon. Greenshields went out in morning and shot three birds, a *Nectarinia* (*cuprea*?) a *Lamprocolius* (one of a flock), and a *Timelia*. In evening brought in male and female *Urobrachya*, a *Spermestes cucullata*, and one of the thick-billed *Drymœca*.

Sept. 12th. Still feverish, but better. Wet all day.

Sept. 13th. 'Fulah' arrived with A. Macintosh, Shitta, and the consul. Felt decidedly better. Got a letter from mother, and news of Balfour's death.

Sept. 14th. On 'Fulah,' more or less well. The valley is wider up here, the hills only appearing in the distance. Macintosh tells me that at Abutschi very lately he found, on the rocks exposed by the very low water, freshwater mussels,

edible and "spiny;" also that a shark was killed there lately and another at Egga.

Sept. 15th. Got to Egga about 9 and landed at factory in a barge, the water being too low for steamer to come alongside, the passage up a very narrow channel. Saw some Jacanas close to town, also a *Sterna, Plotus, Balearica, Pluvianus, Euplectes abyssinicus,* and *Hyphantornis personatus* in acacia bushes by river. The town is well built of round mud huts, in mud-walled compounds and very narrow streets. Got a toad in factory and head of big fish ($31 \times 24\frac{1}{2}$ inches in girth, $17\frac{1}{2}$ lbs.). Adipose fin; ventral fin rather thoracic, very bony; white flesh. There is a tree in yard crowded with *Hyphantornis textor,* and a large tree (? *Adamsonia*) outside more so, with, I should say, near 1000 nests.

Sept. 16th. Convalescent. Repacked my baggage. There are lots of the two common house-lizards here, and a pair of *Corvus curvirostris* came to the big tree outside. Greenshields left for Tchunga.

S. Sept. 17th. Went out shooting with Macintosh down the river, but only got one *Chenalopex,* though we saw lots of it, and a Duck, apparently a *Dendrocygna.* On one of the banks *Glareola cinerea* was in thousands, with a few of a darker one (? *nordmani*), one of which I got; also lots of *Pluvianus* and several flocks of *Rhynchops.* Also saw several *Balearica,* the large white black-billed *Ardea,* a *Merops, Vidua principalis,* and shot a *Chrysococcyx.*

Sept. 18th. In about factory all day. Got from Mr. Bishop a fine pair of horns of an *Alcelaphus,* apparently *Alcelaphus tora.*

Sept. 19th. Out with Macintosh in morning. He shot a *Chenalopex,* and we saw plenty; also a pair of *Balearica* and some *Plectropterus.* He shot for me also a pair of a deeply-forked-tailed Swallow (? *Atticora melbina*), very common on the sand-banks; and I got a Sandpiper on canoe as it lay on beach. Saw a *Porphyrio*; *alleni,* I suppose. Shitta brought in one of the large "singing" snails (? a *Paludina*), and later another still larger. The canoe-boys believed in it, and pointed out the *Paludina* as the performer. Had a ride in evening.

Sept. 20th. Shooting in the morning on the island. Got five birds, male and female *Euplectes abyssinicus*, a *Campephaga*, a *Drymœca*, and a female *Hyphantornis* of a species new to me. Saw also *Laniarius barbarus* ?, a *Merops*, and a Kingfisher, with lots of *Vidua principalis* (female or young), *Lagonosticta*, *Hyphantornis personata* ?, *Turtur semitorquatus*, and *T. senegalensis*, and another smaller species with no white on tail. Macintosh and consul left about 4 for Wanengi, en route for Bidda, I remaining here with Ashbury, who is better to-day, the 8th of his attack. In morning saw four or five *quite black* Hornbills. Heavy rain in night.

Sept. 21st. Showery in morning; so did not go out till after breakfast, when I shot a *Centropus* (same as at Abutschi) and a couple of *Merops*, both with bright crimson irides. Saw *Euplectes franciscanus* on island, and saw several *Euplectes melanogaster*. Got a mail per 'Wanderer,' which had arrived in the night.

Sept. 22nd, 23rd, *S.* 24th, and 25th. Fever.

Sept. 26th. Ashbury left in 'Formoso.' Consul back.

Sept. 27th. Better. Still about factory. Dog caught a couple of rats, a blackish moderate-sized species. Also found another *Gecko* (same species as at Lukoja), and found a dead brown rat of another species in factory-yard. Saw Barber.

Sept. 29th. Macintosh back from Bidda about 10. Discharged 'Jane' at Egga. Started up river for Rabba on 'King Massaba' (Macintosh, Flint, Lever, and self) about 3, and steamed till dark.

Sept. 30th. Fine and bright in morning; about 5.30 saw a magnificent comet, altitude about 20° about E., apparently twice as big as that of 1881, and with splendid tail. Saw an adult *Xenorhynchus* on a bank; C. M. had already described it to me at Egga, and Lever had shot at a young one there. Saw also *Gypohierax* and *Ardea goliath* and *A. flavirostris* (yellow beak, clear). About 9 off the Rennell Mountains, 1200 feet high (900 feet above river), flat-topped, but very detached, with only some remains of hills, much lower laterally, just above the river; the cliffs and lower (only) hills are composed of a pale whitish-and-pink stratified sand-

stone, said by Macintosh to be very clayey. About noon got to Egbagi, a factory on left bank. Afterwards the banks are low and grassy, with the flat hills still in distance when visible. About 5 off Kaduna river, and took a photograph of left bank covered with bush. Saw lots of Hornbills in evening, apparently of two species, a *Toccus* and *Buceros atratus* (♀ ?), flying high in air to resting-places.

S. Oct. 1st. Got aground twice in morning, and 'Jessie' got damaged. Distant hills on left bank still quite flat-topped; banks low and grassy. Hills recede going up river, and only seen on horizon. Banks alternate with grass and thick bushy (low) forests, with oil and a flabelliform palm; the latter more in grassy lands, and has a fusiform stem. About 4 P.M. got to Tchunga creek, on right bank of river; very narrow. Just before entering saw a single fine *Cercopithecus mona* in trees. A good number of birds in Tchunga creek, including *Plotus*, a nearly uniform brown-grey *Schizorhis* (? *concolor*), lighter beneath and with yellow bill (three in a tree), the smallish black-capped orange-legged *Butorides*. Shot a large Owl from ship (*vide* description at end of Hartlaub) as we were anchored for night two-thirds way up to Tchunga.

Oct. 2nd. Started at 10 in 'Jessie,' with Macintosh, Lever, and Flint, for Rabba. Saw three *Balearica* in main river. Got to Rabba about 3. Factory in ruins, and town almost deserted. Strolled up river a short way. The surface is river-gravel, derived from a metamorphic (?) fine-grained sandstone conglomerate, generally with rounded quartz-pebbles, only occasionally angular.

Oct. 3rd. Left Rabba about 5, and got down to Massaba by 8. The country is low, except about Rabba (left bank), generally grass-covered, with scanty dwarfed-looking trees scattered about or in clumps. *Plotus* abundant in creek, and saw several other birds coming down, including an *Ardetta*, *Metopidius* (in creek), *Balearica*, a brown Ibis (? *Ibis hagedash*), a pair of blue-winged red-beaked *Halcyon*, and a large black-and-white *Ceryle*, also a blue-green *Nectarinia* with long tail; these two last from Massaba. A large

fulvous Bat was common along banks, flying out from trees or margins. Very bad night, with fever and mosquitos.

Oct. 4th. Feverish all day; on 'Massaba,' at anchor in creek, Macintosh &c. being busy in rowing down stream from factory. About 4 left Massaba, and went up creek in canoe to factory; in charge, Mr. Bishop. Creek very narrow latterly. Settled myself in factory. Saw *Estrelda* on tree close to landing-place; also *Hyphantornis textor, Hypochera, Passer, Neophron, Balearica, Lagonosticta,* &c.

Oct. 5th. Good night, and felt much better in morning. Took a short walk up to town, situated on hill beyond factory. Saw many birds—*Ixos, Turtur vinacea* (?), an *Ardea* (either *A. cinerea* or *A. atricollis*), *Hoplopterus, Coliopasser, Chrysococcyx,* several *Drymœca,* a new Timeliine, a large grey Pigeon, &c. In afternoon went up hill behind factory. Good view of town, surrounded by castellated mud walls, and of river-valley, very wide; the hills (? on the other side) apparently in distance. Hill covered with rounded flint-pebbles, with occasional blocks of sandstone conglomerate of dark colour. Is this rock *in situ*? Saw *Estrelda melpoda, Nectarinia pulchella,* and a dark species, *Spermestes semitorquatus* and *S. senegalensis, Centropus,* a *Treron,* &c. About twenty *Neophron* settled for night in tree outside factory. Greenshields arrived from Rabba about 9. Very bad night, and feverish again.

Oct. 6th. In factory all day, feeling seedy and weak, with no appetite. Took a short walk in evening up to town. Greenshields had a touch of fever. Good night.

Oct. 7th. Better and stronger. Greenshields left again for Rabba, feeling better. In and about factory. Walked up to Egga in evening. Good night.

S. Oct. 8th. Decidedly better, but appetite still very poor. Shot a white-rumped Swiftlet, already, I think, seen at Egga (? *Cypselus abyssinicus,* in spirit), and a red-rumped Swallow (? *Hirundo melanocrissus*) in factory-yard. In morning's walk saw *Estrelda rufopicta* close to factory, and a peculiar-looking *Hyphantornis*—top of head, back, wings, and tail olive-brown; lores and part of face black; very

broad eyebrows (? *Euplectes melanogaster* changing, or a distinct species). Shot a *Turtur senegalensis* in morning in yard for "chop."

Oct. 9th. In factory all day, labelling birds &c. till 4, when I went up hill to back of factory. Got a few butterflies, including a nice-looking Erycynide; but I was awfully tired and dazed; so came down, and was back by 5.30. Slept well.

Oct. 10th. Went out shooting with Marma at 6.30 to Egga and back by road along back of hill. Got a *Drymœca* and a *Centropus*, and shot also *Hyphantornis textor* (♀, spoilt) and *Turtur senegalensis* for "chop." Got fearfully dazed by light; so came back about 8, without having seen any thing new. In evening took a short stroll along track. Got a few *Cetonias*, a *Lycus*, and a very curious grasshopper, all on grass-stems; also some *Noctuæ*, flying round the grass-flowers, of two or three species.

Oct. 11th. Went out in morning on hill behind town to Egga. Shot an *Anthus* (? *campestris* ♂), and saw a *Budytes flava* on cleared ground near farm. Further on shot a male *Francolinus* (? *bicalcaratus*) on top of a termite-hill: food, dipterous larvæ. Got dazy, so returned by 8; very tired all day. Skinned birds; slept and sat in chair. In evening found a remarkable humpy-looking spider, which on being put into spirit dissolved, there being hundreds of young ones, which were closely applied to limbs, thorax, and abdomen of mother, and so carried about.

Oct. 12th. Slept till about 8, and felt much better. Shot *Budytes* (which turns out not to be *B. raii*) just outside factory-door, and saw several more in old disused factory-yard. In evening took a new walk, past landing-place parallel to creek. Got several *Lycus*, one or two pairs *in cop.*, the male being the form with dilated elytra; also a few *Acræas* &c.

Oct. 13th. Went out about 6.20 along same path after birds, but got very wet in long grass. Shot a *Hypergerus* and a *Timelia* (same as that Greenshields got at Lukoja), and saw *Laniarius barbarus* quite close, a *Merops* (? *viridissimus*), and a black Cuckoo (nearly certainly *Oxylophus ater*), also

Estrelda melpoda and a single *Pœocephalus* (I think, *P. senegalensis*), and others. Several *Budytes* in old factory. Very sleepy all day, with headache. Good night.

Oct. 14th. Out shooting about 6.30; back again by 8. As weak as a cat, and could hardly carry gun; got very dazed, but managed to shoot two out of five *Merops nubicus* in a large tree back of factory, and saw three of a new noisy *Timelia*. Saw a yellow-billed dull brown *Milvus* outside factory in morning, apparently same species as the live one at Abutschi.

S. Oct. 15th. Did not go out all day, feeling very lazy and pulled-down. Marma forgot to call me for dinner, and I slept till 11 and admirably afterwards.

Oct. 16th. Went out about 6.30. Saw a pair of *Hypergerus*, several *Oxylophus*, an *Emberiza*, and shot a *Trichophorus* and a *Halcyon*, both new to list. Bad night.

Oct. 17th. Went out, and soon came back, the sun being too hot for me. Saw a *Cossypha*, and blew a *Laniarius barbarus* to bits. Got a fine green *Treron* out of the "fig-tree," and shot a *Passer*: is it *P. simplex*?

Oct. 18th. Took a stroll in old factory-yard. *Budytes* still abundant, apparently all young birds. Saw two or three *Œna capensis*, quite tame, and lots of two other species of *Turtur*. The day before somebody brought a very peculiar scincoid lizard, pale pink above, lighter beneath, with black spots; head much damaged. Rained heavily in night.

Oct. 19th. Got a few butterflies and other insects, the latter chiefly at night. Went out in the morning, but got no birds.

Oct. 20th. Spent most of the day in labelling and repacking birds' skins. Did not shoot in morning.

Oct. 21st. Went out in morning and shot a white *Ardea*, one of three or four, from the top of a big tree in village. Saw a small *Phylloscopus* in fig-tree; but very little done, though I worked along top and bottom of hill.

S. Oct. 22nd. Took things easily; poor breakfast. In evening took constitutional up to town. Bad night.

Oct. 23rd. Continued lying-up, so did not go out in

morning. Christmas-day here; so in morning a great procession of horsemen coming from mosque, gorgeously arrayed, especially as regards umbrellas, with much furious galloping and explosion of petards. Greenshields arrived in evening from Rabba, very weak, having been very ill with fever, dysentery, worms, &c. Goodish night.

Oct. 24th. Lying-up. Greenshields quite invalided. Remade cartridges. Dreadful night.

Oct. 25th. Still lying-up. Greenshields slightly better. At Rabba he got some birds for me (see end of book), but *Prionops* was the only new one. He also got a couple of an *Astacus*, which reached me badly preserved. Marma's attempts at shooting hitherto rather feeble, resulting in a couple of *Pluvianus*. Been here three weeks; on the whole a very bad time as regards "chop," sleep, and strength, and no spirit for specimens.

Oct. 26. Had a better night, having taken a strong dose of chlorodyne. Felt sleepy all day in consequence, and did not get up till 10. Greenshields not so well again. Took a constitutional up to town in evening. Wretched night again, with impossible dreams.

Oct. 27th. No change. Greenshields considerably better. In evening went out for a short time, and shot a *Budytes raii* in old factory-yard (a young bird, moulting) and a *Phylloscopus* (apparently Willow-Wren) out of fig-tree; also an *Ixos* and the female *Hypochera* (spoilt). Took a strong dose of chlorodyne at night, and slept better.

Oct. 28th. Did not get up till 10. Skinned birds. Appetite seems better. In evening went out and shot a *Cypselus* (? *abyssinicus*), a Swallow (*Hirundo melanocrissus*), and one of the dark *Nectarinias*. Slept very badly.

S. Oct. 29th. Very poor appetite. Skinned birds shot the day before. In evening went out and got a female *Hyphantornis textor* and a fine *Schizorhis* (sp. inc.). Slept better.

Oct. 30th. Did not go out all day. Skinned birds. Very weak still, with poor appetite. Slept wretchedly.

Oct. 31st. Did not go out all day. Slept much better, having taken a strong dose of chlorodyne.

Nov. 1st. Greenshields went out before breakfast, and shot a young *Ardea atricollis,* in the stage with the neck behind grey and in front white and buffy (upper mandible black, lower bony, and ringed at base and apex with yellow and along tomia with blackish; lores naked, yellow, as is space round eye; a leaden streak below eye leads to beak; iris bright yellow; legs black). In factory all day.

Nov. 2nd. Lots of *Milvus parasiticus* about factory in morning; also saw a *Merops nubicus* or two. Skinned a *Pluvianus* which Greenshields had shot the previous evening. About 4 we went down creek in canoe, but did not get much (only a *Corythornis* and another of the yellow-chinned *Trichophorus*), though we saw lots of birds, Wishie-wishies, and apparently another kind of Duck (no, it is *Œdicnemus*), an *Oriolus,* Kingfishers, &c.; *Schizorhis* we saw several of; *Merops nubicus* was common, hawking in the air, flying slowly, with alternate flapping of wings and gliding, and uttering a low repeated note. Saw lots of *Parra.*

Nov. 3rd. Shot a *Neophron pileatus* in morning from factory for a skeleton. Appetite decidedly better. In afternoon went down creek again, but without very great results. Got a young *Parra* (for coloration, see Hartlaub), a *Merops erythropterus* in bad plumage, a *Ceryle rudis,* and an *Ixos.* Went ashore amongst some really big forest-trees, but no second-growth or creepers, and only long grass &c. below. Quite a swarm of *Merops nubicus* flying very high over trees.

Nov. 4th. Saw five of the brown Ibis in morning in front of factory. They have a loud mewing Hornbill-like cry, and fly like Cranes with extended downwardly directed head and neck. Appetite much better, and made a heavy breakfast, which kept me asleep most of the day. Skinned the *Ixos.* Did not go out in the evening, Greenshields being busy with his accounts.

Nov. 5th. The weather the last few mornings has been remarkably cool and fresh. Going on well. Went down creek in afternoon in canoe alone, rather earlier than usual, and got a long way down. Shot an adult Jacana, an *Ispidina cyanotis,* one of the smaller Flycatchers so common

along creek, a couple of *Merops* (very common all along lower part), as well as a couple of the orange-winged Bats. All the wing-membranes are cadmium-yellow; the muzzle, nose-leaf, and ears light orange-yellow (diaphanous); fur yellowish grey. Saw also *Ceryle maxima,* the Greenshank of Egga, the small grey Heron, and apparently also *Ardea purpurea,* or perhaps young *A. goliath.* A good-sized *Monitor* tumbled off a tree into the boat, but got away.

Nov. 6th. Appetite still good. Went out in evening down creek. Shot a *Peristera afra* and *Halcyon cinereifrons* or *dryas* (upper mandible scarlet, blackish at apex; lower black, shaded with red; feet red; iris brown), a *Merops, Schizorhis, Hyphantornis personatus* (in change), and a Swallow of the species so common at Lukoja. Saw *Ceryle maxima* again, and the *Monitor* in the same place; also saw plenty of *Merops nubicus* and *M. castus.*

Nov. 7th. Spent day as usual. In evening went down other branch of creek. Got three birds—*Halcyon senegalensis, Corythornis cæruleocephala,* and *Œdicnemus,* the latter being what we had taken for young of *Hoplopterus.* Saw also a Heron (size of *Ardea cinerea*) with yellow legs and beak, in brown striated plumage; nearly sure it is *Ardea purpurea,* jr. In creek saw several *Ceryle gigantea,* but could not shoot one; also lots of *Plotus.* Young *Merops nubicus* was in thousands, in great swarms high in air, flying over the fields, and in forties and fifties on the trees; mixed with it a good number of *M. castus.* Got a shot at a pair of Ibis, but missed. Also saw an Eagle, apparently a young *Spizaetus occipitalis.* Plenty of *Merops erythropterus, Euplectes ignicolor,* &c.

Nov. 8th. Skinned birds in morning, and filed down brass cartridges to fit shot-gun. No canoe to be had in evening; so did not go out at all. Not so well, with no appetite and some fever (? in consequence). Took a strong dose of quinine, and slept better. Comet still visible in east by a little south, higher than it was at Rabba. Canoe arrived at last from Egga, with stores and gin.

Nov. 9th. All right again. Packed up and soldered

spirit-specimens. Did not go out in canoe in evening, as all the people are engaged getting sticks &c. for wall of new factory. Took a walk along hills and back along top, but saw nothing. Slept very badly.

Nov. 10th. Packed away bird-skins. Greenshields shot a Crow, which I pickled. In evening went down creek again in canoe. Lots of the two Bee-eaters close to "beach," over grass-fields. Saw very few birds in creek, but shot a Fly-catcher (*Tchitrea* sp. ?), one out of several flying about top of high trees in some bush where we landed, and a very fine Owl, apparently a new *Scotopelia*, in creek; also a Bat (*Epomophorus*) fluttering in water, apparently bathing.

Nov. 11th. Got a Siluroid from natives, about 2 feet long, and a small *Protopterus* ("Addo"). Skinned the Owl, which took best part of the day. In afternoon went up left arm of creek in canoe. Got a large *Epomophorus* (? *monstrosus*), of which there were considerable flocks, disturbed out of bordering trees, mixed with the orange-winged species. Of birds, got a *Laniarius barbarus, Ceryle rudis,* and a small masked *Ploceus*. This species swarms all round the creeks in reeds and long grass; but all the flocks consist of females or males in olive plumage, with a few males not quite in full colour (are these moulting from, or changing to, full dress?), *vide* a skin procured. Saw an *Ardetta* (*minuta*?) in full dress.

Nov. 12th. Three Ibises passed in morning. They fly like Cranes, with *outstretched* necks, and are very noisy on wing. Note, two long followed by three short, uttered in a bleating sort of way. *Balearica* says "*quack, quack,*" in a very resonant trumpeting way. In evening went up left arm of creek again. Shot a young *Saxicola* (? *rubetra*) at landing-place, and in creek a *Merops nubicus, Halcyon senegalensis,* a *Plotus,* and a *Phalacrocorax africanus,* of which I saw four or five in the trees. Swarms of *Merops* again; besides, saw a very fine red-white-and-blue *Halcyon,* and a large white bird (I think a Pelican), *Haliaetus vocifer, Gypohierax, Ibis hagedash,* &c.

Nov. 13th. Dissected the stomach of the *Plotus*. Just as in the first, no V-shaped "ridge," except that the proven-

tricular patches, particularly one, are rather elevated marginally. Fish (all small and transfixed) in stomach, with nematodes, though many tæniæ. Remade all cartridges. Greenshields shot a *Halcyon senegalensis* close to new factory. Saw an adult *Ardea atricollis* in rice-fields opposite. Did not go out in evening.

Nov. 14th. Went out about 6.30 on hills behind factory towards town, but only got another Whinchat and two *Merops nubicus*, which was in numbers on two or three trees. Saw a fine pair of a red-headed grey-backed *Falco* (? *ruficollis*) and a flock of apparently *Foudia erythrops*, but only one was in colour, and that flew. Got two fine *Malaptururus* and a Percine form from natives. In evening went down creek, but only got a *Halcyon* (*dryas* ?) and a *Lacerta*; the latter caught in canoe. "Flogging palaver" in evening. Saw a single *Palæornis* in creek.

Nov. 15th. Started about 6.30 A.M. in canoe, and went up left arm of creek. Unlucky; only got a Jacana and a small Warbler, apparently *Acrocephalus arundinaceus*. Saw a *Plectropterus*, *Emblema rufopicta*, *Limnocorax*, several *Ardea purpurea*, *Laniarius*, an Oriole, *Ceryle gigantea*, seven young *Nycticorax* (? *europæus*), and four *Irrisor* (apparently *Irrisor pusillus*), &c., &c., three together, but all unfortunately out of shot. They fly with tail stretched out straight behind. Saw two *Balearica*, each *perched* on *top* of a tree answering each other. Greenshields got my gun "fixed" again safely. Got six half-grown examples of the Percine form. In afternoon caught a few butterflies &c. and a very fine bug—in life straw-colour, with Veronese-green spots and red sinuous line on prothorax.

Nov. 16th. Went out in morning along footpath at base of hills to near bush on creek. Got four or five new birds, including a Parrot, apparently *Pœocephalus rufiventris*, and saw more; also one or two *Acrocephalus turdoides* (in bushy part), a *Drymœca* (? new), and *Estrelda cinerea*. Also saw *Euplectes oryx* in flocks with last, *Euplectes franciscanus*, *Urobrachya macroura*, *Hyphantornis personatus*, *Spermestes cucullata*, &c.; all *Euplectes oryx* out of full colour,

apparently moulting, whereas many *E. franciscanus* in full plumage. Shot a ragged female, same as male, some still in yellow-and-black dress. Also got a *Crithagra chrysopyga*. Got a good-sized *Clarias* and another Siluroid, also a large-scaled barbel-like fish, from natives.

Nov. 17th. Finished-off Parrot in morning; put fresh spirit in tins &c. In evening went down to bush and palm-groves, where I saw many birds—*Colius*, Hornbills, Kingfishers, Ibis, &c.; but all out of shot, and only got a ragged (moulting) Weaver-bird of a species new and unknown to me, with black crown and broad rufous eyebrows (ptil. hyem.). The note of the *Ixos* usually is a mellow whistle of two notes, the second stronger and more pronounced. Tree on beach with Palm-birds' nests now quite deserted, and Greenshields says young flown. This, taken with other facts (*Hyphantornis personatus*), looks as if Weaver-birds bred during *wet* season (*cf.* Abutschi), moult into non-breeding dress, and take to fields in flocks. Greenshields got me a nice living *Cyclanosteus* from the natives.

Nov. 18th. Down to palm-groves early. Got some good birds, three new, *Cossypha albicapilla*, *Andropadus* sp.?, and *Anthus pratensis*, another species, the doubtful Weaver, the fine *Nectarinia*, and *Criniger gularis*, and saw many others—*Pœocephalus*, *Palæornis* and *Agapornis* (both in some numbers), *Colius*, *Irrisor*, a pair of a *Musophaga*, the striolated *Halcyon* (? one at Abutschi), the rufous-fronted *Timelia*, &c., &c. The *Ibis* is, I believe, *falcinellus* after all. I saw a Coly clinging to tree-trunk (a vertical palm-stem) just like a Woodpecker, one of which, also of a species not seen before, was just above it. Both *Irrisor* and *Colius* are very wary, keeping just in front of you out of shot, and flying from one palm-crown to another. I rather thought I recognized a fourth Parrot, a *Pœocephalus* of the *meyeri* lot, but too far away to be certain of. Greenshields got me a nice Murænoid fish (about 30 inches), with very small eyes. Skinned birds all day. Greenshields went down to palms in evening, but only got an *Ixos*.

Nov. 19th. Down to palm-groves in morning. Got two

new birds (*Pyrenestes ostrinus* ♂ and two *Ægialitis tricollaris*) in rice-fields, where there was also another Wader with white tail; also shot a *Drymœca* and *Agapornis*, of which there were a good many. Saw a small orange-fronted black-faced Weaver (? *Hyphantornis brachypterus*) of an unobtained species, *Pœocephalus*, a large black Hawk (*Spizaetus*), *Hypergerus*, *Cossypha*, &c. &c.; no *Colius* nor *Irrisor*, and only one *Toccus*. Greenshields got another scorpion. In evening down to palm-groves again; got two new species—*Toccus pœcilorhynchus* and *Hyphantornis brachypterus*.

Nov. 20th. Down to palm-groves early. Did well, shooting two *Irrisor senegalensis*, a large Bulbul of a new species, another *Pœocephalus*, and a *Halcyon senegalensis*. The black-and-white Hornbill is apparently *Toccus semifasciatus*. Greenshields went out and got two or three small birds and a Wader of a new species, apparently a young Redshank. Later on he got a *Halcyon rufiventris* on beach and a small snake. Got four fish from natives, two specimens of a large marbled grey-and-black siluroid, and two of a Percine form with dark-banded tail. Felt rather seedy all day, having had a bad night.

Nov. 21st. Much better. Got a small grass-snake from native, of a bright dark green above, paler below, a few of the scales entirely light blue, many with a small spot towards base of same colour. Also got a large-scaled abdominal carp-like fish, with yellow eyes. Comet still visible and much higher, apparently as long as height of Orion when vertical; bearing E.S.E. Took things easily rest of day, skinning Parrot and reloading cartridges.

Nov. 22nd. A regular "thoke." Got no specimens of any kind, except two of the Murænoid fish. Went down creek in afternoon, but got nothing. Had a shot at a snake swimming across creek, and another at a Falcon in tree close to Katambos (the outside houses with two entrances are called "kattas").

Nov. 23rd. Down to palm-groves again. Got a Hornbill of a new species (apparently a *Toccus*, sp. nov.), two *Andropadus*, the *Passer*, and the same green *Nectarinia* as occurred

at Lukoja. Saw *Cossypha*, the grey-and-red *Tchitrea*, &c., but no *Colius* or *Irrisor*. The Ibis has red feet and reddish beak, and is apparently after all *Ibis hagedash*. Got a calabash full of small fish of five or six species, a *Phoxinus* and perhaps one or two others new. Got two large specimens of the Murænoid fish from the fishermen: it makes a noise when held in hand.

Nov. 24th. Almost a blank day, and did not go out at all. Only got a few beetles &c. from box. Bought a pair of female jujus from Florin and a mat from Bidda. Packed a tin and got it soldered, which took five men about two hours, and then it leaked.

Nov. 25th. Down to palm-groves in morning. Got nothing new, and saw comparatively little except a fine pair of *Spizaetus occipitalis*. Shot a Parrot, *Nectarinia*, *Hyphantornis textor* (? ♂ out of colour), &c. Found four *Polypterus* for me on return, and later on got three smaller ones from same women. Heads all broken, being supposed to be very savage by natives (name *Nupi*). Went out again in evening in canoe, but got no birds. Saw two or three *Ceryle gigantea*, lots of *Merops nubicus*, &c. &c. Got some more fish from boys in evening, all small, and another specimen of Siluroid, very silvery beneath, olivaceous above. A Labyrinthicine (?) form has a series of small metallic bright blue spots along back, 2–5 in vertical series, and a similar (1–2) series on dorsal fin; a blackish spot on operculum and another on sides of body posteriorly; skin at base of scales reddish; general colour olivaceous green, paler and redder below.

Nov. 26th. Again down to palm-groves, but only shot a young *Centropus*. Missed a Hornbill, and only wounded one or two other birds, which escaped. Saw a covey of Guinea-fowls perched in high tree; the one struck got away wounded. Got another *Polypterus*, and a second specimen of one of the Percine forms. In afternoon went out for a ride with Greenshields to Shonga town (the wharf town is called Shonga Pattch) and beyond. Got a nasty tumble, hurting badly left shoulder, hip, and side. Very busy market-place, sur-

rounded by king's house, mosque (destroyed), &c. In garden of former are some fine date-palms (introduced), and in one of the yards I saw a Cactoid (*Euphorbia*), which is rare in this part, so far as I have seen.

Nov. 27th. Did not go out in morning. Got a *Polypterus* (the ninth) and another fish from people, and in evening one of the large Siluroids and a basinful (about 20) of an eight-barbed species of small size. Went down creek in evening, but got nothing. Saw *Ceryle gigantea*, a pair of *Schizorhis*, and a single *Podica*, which got away wounded; it climbed up bank out of water, and rather nimbly up a small tree to ten or twelve feet from ground; very Duck-like altogether in habit.

Nov. 28th. Went down creek again in morning to look after *Podica*, but in vain. Only shot a *Platystira* with scarlet eye-wattles and a *Totanus* of same species as one skinned at Egga (iris brown; beak greyish; legs pale dead-flesh colour). A small scarlet *Homopteron* is common on reeds in reed-beds, and a brilliant object when flying in the sun. Refilled cartridges, labelled birds, &c. rest of day.

Nov. 29th. Down to palm-groves in morning. Did well, getting three specimens of Woodpeckers (all new to me), *Hirundo senegalensis*, one of the obscure *Ploceus* in good (out of colour) plumage, and an *Ægialitis*, apparently *hiaticula* (eyelids narrowly yellow; iris olive-brown; beak black; legs pale orange), on beach, and a mature moulting specimen of the black-and-white *Toccus*. Saw three or four *Crithagra*, the fine *Nectarinia*, &c. Saw a family of a fine large *Cynocephalus*, apparently *C. anubis*, on border of bush and in banana-clearing—large, with long tail, mane rather deep colour, and large callosities; face blackish. Got a small harmless snake in afternoon from a native; and in afternoon went down creek, getting five birds—a *Turdus*, *Dicrurus*, *Butorides*, *Œdicnemus*, and a *Caprimulgus*, the first two in bush, the last in reed-marsh. Got two shots at the big Kingfisher, and of course missed; also saw, but did not get, a *Cossypha* in bush. *Dicrurus* was in a swarm of ten to

fifteen, and is awfully active, incessantly in motion. Got my tenth *Polypterus* (undamaged) from fishermen in marshes. About 10 P.M., as Greenshields and I were sitting in piazza, with lamp, a snake's head appeared above low parapet-wall separating piazza from factory, and disappeared again directly. I saw it, and going out killed (in three shots from 16-bore)—a good deal damaging it—a fine puff-adder, 44 inches long. On dissection it turned out a female full of eggs, but with empty stomach. Shonga cannot be considered exhausted as regards birds, as to-day I have got eight new species, six of which I had not even seen before. Have been here eight weeks, and have got or seen about 105 birds.

Nov. 30th. Not out in morning, but put spirit-specimens in order. Got some fish from Suma (=Sheedi), a black *Osteoglossum* (?), a Percine form, and a silvery Clupeoid with ventral and anal fins slightly tinged, with lower lobe of caudal entirely bright red (? same as got at Lukoja). In evening went down creek, but only got a *Melierax* (has not this bird lumbar powder-downs ?), beautifully shot. Had a shot at *Macrodipteryx*; of course saw, but did not get, the big *Ceryle*.

Dec. 1st. Down to palm-groves, but unlucky; only got one new species, *Estrelda subflava*, a *Euplectes franciscanus* in moult, and another of the doubtful *Ploceus*. Saw little else, except a flock of five *Colius* (one of which I might, if not short-sighted, have got), *Crithagra*, *Agaporkis*, &c. Got five fishes from natives—two Siluroids (new species: of the silvery form which has lower lobe of tail reddish, and one very heavily armoured), a *Polypterus*, and two banded-tailed Percoids. The natives have an idea that the eggs of the puff-adder (Edou-Tappa-Nupi-Arka-Yagi=Yoruba) produce *Polypterus*. Got a lot of eggs of a very large Teleostean (? Siluroid), full of yolk (size and colour of a large white-heart cherry), with small very vascular area, pellucid above, in which lie well-developed and active 1½-inch embryos, with perfect black conspicuous eyes and limbs, extracted from uterus: natives say eggs grow to twice size before hatching:

adult has smooth thick skin, of dull silvery colour; across middle of body (in transverse section) 10 inches. In afternoon got a small black snake in stable, coiled up beneath lumber. Took some photographs of beach and natives in afternoon, and afterwards went down creek, shooting a couple of *Elminia longicauda* in bush. Got a few small fish from native boys, including a nice little *Polypterus* and the young (of several sizes) of a curious suctorial-mouthed form. This grows to about 18 inches. Felt feverish in evening, and had a wretched night, not getting any sleep after 12.

Dec. 2nd. Felt seedy, and did not go out in consequence all day. Got a good *Polypterus*, and in evening a large specimen of the silvery Siluroid (with very long upper tentacle) and an adult of the banded-finned Percoid. Shuma brought in for inspection a mutilated and much-contracted skin of a *Viverra*, apparently *V. civetta*, thickly spotted with black, with black head and white patch on each side; fur rather long.

S. Dec. 3rd. Got two more *Polypterus* from natives, still alive when brought; neither very big. Greenshields shot a nice *Laniarius barbarus* in tree behind yard. Went down creek in evening, but did not fire a shot.

Dec. 4th. Got a *Macronyx croceus* (structure of tarsus typically Oscinine and Alaudine) and a *Halcyon rufiventris* (?) in palm-groves; but saw little else particular, except a flock of six or seven *Colius*, which I "chivied" hard, but could not get within range of. A large specimen (28 inches long) of the large-scaled Ceratodoid *Osteoglossum* was brought in, but too big for pickling with the poor spirit at my disposal.

Dec. 5th. Went down to palm-groves in morning, with gun and net. Got a *Pogonias* and *Estrelda cinerea*, and saw a solitary *Colius*, but could not get up to it. Caught a few butterflies &c., and had a little sweeping amongst rushes and ferns &c. in damp parts, producing a very curious *Mantis*, wonderfully plant-like, and two or three species of stalk-eyed flies. Got two new specimens of fish from natives, a very curious horse-headed form, and two large specimens of a large-scaled Cyprinoid. In evening shot a male *Macro-*

dipteryx in factory-yard, the long feathers apparently broken or shot short. Alarm of a hyæna in night (before).

Dec. 6th. Only got an *Estrelda melpoda* in morning's shooting, and saw nothing interesting except a *Hypergerus* and the *Ibis* which has very conspicuous light metallic-green shoulders and white stripe on sides of head. In evening went down other branch of creek. Saw few birds, except *Ceryle gigantea* (as usual) and a lot of *Treron* and *Corythaix* in big tree near fork. Got five Bats (three *Epomophorus* and two of the insectivorous form), and coming back got a female *Macrodipteryx* in reed-beds. Got one big and a lot (about fifteen) of smaller *Polypteri*.

Dec. 7th. Went out for two hours' entomologizing in morning, and got four specimens of *Lycæna*, two *Hesperias*, *Danais*, *Acræa*, &c. &c. in or on road to palm-groves. Got a very blubbery fat *Malapterurus*-like fish (greenish grey spotted with black above, whitish beneath), a Scaroid (silvery dark-striped, like a young mullet, with red fins), a Clupeoid with red fins (?=that got at Lukoja), two specimens of Chætodontoids (silvery, one with entirely red fins and unmarked; the other with eleven long lines, the more dorsal zigzagy, fins edged with red and larger scales), and a large dull grey barbel-like fish. In evening down to palm-groves. Got a *Turdus pelios* and a second larger specimen of *Centropus*, of which I had also got (but not recognized as distinct) a young bird.

Dec. 8th. Got one big and two small *Polypteri*, two of the black *Osteoglossum*, and two of a new fish with no ventrals, small pointed dorsal, and very long anal fins. People brought in with other hides a skin of *Hippotragus equinus* from Potashi, a town about half-a-day's steaming from Bussah. Got a large, small-scaled, carp-like fish, of a new species, in evening from Bishop. Went down creek in afternoon, as far as bush at fork. Got a *Xerus* and three birds—female of *Platystira melanoptera*, *Hypergerus* (several seen; its note a harsh one, repeated several times), and a new *Drymœca*-like form. Saw and wounded a large grey monkey, apparently *Cercocebus albigena* or *C. fuliginosus*, also a *Nycticorax*; but both escaped.

Dec. 9th. Got three *Polypteri* and two other fishes, the silvery Clupeoid and the Scaroid, which superficially exactly resemble one another, differing in teeth, form of head, anal fin, and coloration of ventrals. In evening went down creek, but got little, only an *Epomophorus* and an *Estrelda rubropicta*, both damaged.

Dec. 10th. Down to palm-groves &c. and got five birds, two being new, a small *Barbatula* (iris brown, with bright orange-yellow frontal spot, light yellow-sulphury uropygium, and citron-yellow edgings to lesser wing-coverts; greater coverts and most proximal remiges bordered with white; crown, nape, and neck flammulated with white) and a small *Drymœca*. All flocks of *Euplectes* and of *Ploceus*, sp. inc., are now in full winter plumage. Lots of *Pratincola* about. In evening went down creek; got a female *Ploceus brachypterus* and male *Macrodipteryx*. Saw also the male of the *Tchitrea* I had previously got female of; it is white, with glossy crested head and two long rectrices. Saw also some females of it, *Laniarius*, &c.

Dec. 11th. Down to usual shooting-grounds in morning. Got two females and one male of *Ploceus brachypterus* and a small *Drymœca*. Saw a single *Scopus* (flight light, easy sailing, with no heavy flapping as in Herons), and wounded or killed, but could not find, what was apparently an *Indicator*. In evening, down creek, got the male *Tchitrea*; also a *Scotornis climacurus* on way back. Rather feverish again.

Dec. 12th. Did not go out in morning, but took a "thoke." Filled a tin full of specimens. In evening down creek. Saw a *Scopus*, and shot one of the large species of *Centropus*. Stores from Egga arrived. Got a few fishes, including two specimens of a new barbel-like fish with a red spot on tips of scales.

Dec. 13th. Got about eighteen fishes in morning, of six or seven species, including one new one, a barbel-like form with very large scales. Did not shoot in morning. Got a young *Ibis æthiopicus* in evening in rice-fields opposite factory, one of a number; these birds have appeared quite commonly during the last few days. Saw several *Scopus* in company

with these Ibises and Cow-birds; and there were also a fine pair of *Xenorhynchus* stalking about in same fields, now with water let off and rice about a foot high. Down creek in evening, and got a new *Phylloscopus* in high bush. Saw a pair of *Ciconia episcopus* flying over creek.

Dec. 14th. Down to palms in morning; got a *Campephaga* (♀), one of the small *Centropus*, and three others. Saw a number of what was nearly certainly, from size, colour, and note (which is particularly whirring), *Ploceus textor*, frequenting the small palms there. Greenshields tells me they do not return to beach till about March, *i. e.* beginning of rains. All those I saw to-day were in female plumage, and for a long time I have seen no full-plumaged males. Comet still visible from about 10 till early morning, much more dim than formerly; movement from E. to W. Got a number of small fishes in afternoon, chiefly a perch-like form; amongst them a curious, spotted, small Siluroid, with the two inferior pairs of tentacles *branched*.

Dec. 15th. Went into rice-fields in morning, but was nearly murdered by mosquitoes and had to come back soon. Shot in rice-fields a large *Centropus*, an *Acrocephalus turdoides*, and a *Limnocorax flavirostris*. Greenshields afterwards shot an *Ibis*; and we saw *Scopus* and a *Ciconia episcopus*, each singly, in same flock. In evening down creek and got a *Nycticorax europæus* in adult dress, but with no long crest-feathers. Saw, going down creek, an antelope (apparently a male *Tragelaphus*), a Gull (? *Rissa*), and a white-winged pale rufous Heron (? *Ardea comata*).

Dec. 16th. Rather seedy, with a headache. Went down to palms, and got at last a big *Ceryle*; also a *Macronyx* and a small *Drymœca*. Did not go out in evening.

Dec. 17th. Started about 9 with Greenshields in canoe for an expedition down creek into big river (Edon-Tappa-Quorra-Gambari-Oiya-Yagi), getting back about 7.30. In lower part of creek came across *Merops bullocki* in some numbers, settling in high trees on bank and flying off in regular Bee-eater style; also shot a *Ceryle gigantea* (? female or young, very different from others) and one of the *Lobiva-*

nellus which is common here and turns out to be *albiceps*. Went up river towards Rabba for some way, and saw plenty of birds on banks—about twenty *Balearica* on one bank, with some Ibises (*I. æthiopica*), a pair of *Chenalopex*, and three Spoonbills, one of which I shot, Greenshields getting one of the Geese. Also saw an Osprey, one or two *Haliaetus*, and plenty of *Gypohierax*. Saw a couple of monkeys (? *Cercopithecus cynosurus* or *C. griseoviridis*) in bush, and might have had a fine shot at them, but rifle not loaded. Also saw and shot at a single Hippopotamus. Feverish all day.

Dec. 18th. Slept till 10, and felt much better. "Gunniga" brought in two bush-fowl, chickens, just hatched. They are apparently a *Turnix* in first plumage. Got a second *Cyclanosteus*; it has yellow iris. The *Platalea* (a male) has windpipe thoracically dilated, depressed, of peculiar structure, and convoluted subcutaneously, the loop coming halfway up neck nearly. Greenshields shot a *Balearica* opposite factory. In afternoon down creek. Got an immature Squacco Heron and a nice *Scopus*, perched on a low branch of tree overhanging water; it vomited up a number of small fishes when shot. Saw the *Rissa* (?) again in reed-beds. Wretched night.

Dec. 19th. Greenshields shot a second *Scopus* just outside in morning. Filled up a tin with spirit-specimens. Felt seedy all day. Went down creek in afternoon, and shot a *Cossypha verticalis* in bush, and saw others. They hop about ground and low bushes and trees, and are very shy; their note a harsh whistle. A sharp attack of fever came on in canoe; so got home early and lay up. No dinner. Got two more *Cyclanosteus* from a woman; smaller than others.

Dec. 20th. Much better this morning. Got another *Cyclanosteus* and five other fishes—two *Malapterurus* and three specimens of a small-scaled barbel. Went down creek in evening and saw two or three *Rissa* (?) near wharf, and shot a small *Phylloscopus* (greenish, with yellow soles), which got ruined in rain. About 5.30 a strong tornado-breeze, with lightning and heavy rain, came on; and we got a good wetting. It has been very cool and cloudy for last day or

two. This is first rain for about two months, except one or two very slight showers. It rained again in night, sleepless for me.

Dec. 21st. Got a large Siluroid, with big rounded adipose fin; I think new to me. Dull and cloudy all day, and in evening it came on to rain about 5, and rained afterwards again all night. Did not go out all day.

Dec. 22nd. Not out in morning. Got a few fishes, but nothing new. Cloudy and dull all day, but no rain; cleared up a little before sunset. Went about 5 down creek, and got a young black Tern (new) and a second *Cossypha verticalis* on a tree the other side of creek. Saw the white male *Tchitrea* again, with female *Laniarius* and *Dicrurus*, &c.

Dec. 23rd. Down to usual shooting-grounds, but saw and shot nothing new. *Ploceus brachypterus* is now abundant; these feeding on corn (and palms?). Got another of the Drymœcine form, in which sexes differ in colour of soft parts, a *Macronyx* (perched in a biggish tree), one of the *Zosterops*-like form, and a *Hypergerus*. In evening down creek; got two males of the *Tchitrea* (one in perfect, one in immature dress) and a *Scopus*.

Dec. 24th. Down to usual shooting-grounds in morning, and then turned off to right over hills, where grass has been burnt, and so back to Shonga. Saw several (and shot one) *Hoplopterus spinosus*, *Toccus pœcilorhynchus*, a *Dicrurus*, *Macrodipteryx*, and two or three of a *Pterocles* in sandy places on hills, the *Zosterops*, &c. A pair of *Xenorhynchus* again in rice-fields opposite, stalking about in afternoon.

Dec. 25th. Christmas Day. Out shooting in morning, but got little, though I saw several nice things—an Oriole, grey *Campephaga* (?), a single *Pterocles*, *Toccus pœcilorhynchus* (several), &c. &c. A small flock of *Schizorhis* in palm-groves; they have a loud call-note, rapidly repeated, "*cow-cow-cow*" &c., and when sitting sometimes raise tail till quite vertical over body. Bag: one *Turdus pelios* (shot hopping on ground amongst burnt bush) and one *Drymœca*. Got a *Diodon* (or *Tetrodon*) from a native woman—ground-colour olive-black; chin and belly nearly whitish, shading

off above into yellow; several long stripes pale yellow dorsally, getting deeper ventrally, and below level of caudal fin getting chrome-yellow of flanks and vent, round latter of which the colour is brightest; dorsal fin yellowish; caudal fin olive-green for basal half, rest bright yellow; pupil yellow, with a red ring round it. This specimen was rather dry when brought; the colours are much brighter where skin has been kept moist by being covered by the fins. In its stomach were remains of a small *Anodon* or *Unio*, which also forms food for the *Cyclanosteus*. The fish is well known to natives, and it is said to be common. They do not "chop" it, but make drums of its skins. Greenshields caught, almost uninjured, a small snake in factory-yard, and brought it in alive; apparently allied to *Tropidonotus*. In evening down creek; got a new Flycatcher and a second specimen of Tern with reddish beak, perched on high grass amongst reeds. Saw also a *Musophaga violacea* in big trees, but could not get a shot at it; a second specimen of the big *Scotopelia*, which I missed twice; and a third time got a missfire at several *Platystira*, a couple of female *Tchitrea*, *Scopus*, &c. &c.

Dec. 26th. Boxing Day. Intended to have gone out photographing in morning; but the fall was out of order, and it took some time to set it right. Got a couple of small fishes in afternoon—one new, one of the red-spotted barbel. Went down creek in evening, but got nothing and saw little—two or three *Laniarius*, a *Malaconotus*, &c. The canoe-men saw and caught for me a chamæleon which was on a small tree overhanging river; it is apparently *Chamæleon senegalensis*. Saw also a snake swimming across creek; but it just escaped: apparently a *Tropidonotus* with a row of dark brown spots down back.

Dec. 27th. Seedy from diarrhœa in morning and did not go out, having slept badly. Went down second branch of creek in evening, but got nothing, not even firing my gun. Got two fishes, one new, a large Gadoid-like Acanthopteron, which Greenshields says is the species that grows to be the biggest fish in this river.

Dec. 28th. Still ill, having had another wretched night.

Stayed in house all day. Greenshields shot a second *Lanius rutilans* for me from bush opposite factory.

Dec. 29th. Not much better, the diarrhœa (or dysentery) continuing. Women brought in a small land-tortoise, with movable carapace (*Cinixys*). In factory all day. Greenshields shot me a small *Centropus* in field opposite.

Dec. 30th. Still ill. Greenshields got me a *Limnocorax*; and they brought in a pretty lineated Tropidonotine snake, scarcely at all damaged.

Dec. 31st. In factory all day; perhaps a little better. Greenshields in morning shot a young *Anastomus lamelligerus* on top of roof of house. He says they are not uncommon here. (N.B.—Notice the peculiar lamellæ at the apex of maxilla.)

1883.

Jan. 1st. Much the same, with no decided change. Got a new Scaroid fish and a very pretty small Colubrine snake.

Jan. 2nd. Still seedy.

Jan. 3rd. A small snake was caught in factory during the night.

Jan. 4th. Still seedy, getting better only slowly, with want of appetite and weakness. Greenshields shot a couple of Waders from two separate flocks in rice-field; they are both new to me. Canoe-men brought in a small *Monitor* (? *ocellatus*).

Jan. 5th and 6th. Still ill; feverish, with no sleep or appetite. Saturday afternoon got a big packet of letters from home; the last about November 8th. It is about 14 *weeks* since the last lot reached Egga.

Jan. 7th, 8th, 9th, and 10th. Still very ill; in great fever.

[*In another hand.*]

Jan. 11th. In high fever.

Jan. 12th and 13th. In very high fever, and delirious night and day.

S. Jan. 14th. W. A. F. died at 8.40 A.M.